What is claimed is:

1. An absorbent article comprising a top sheet, a back sheet, and an absorbent core disposed at least partially between the top sheet and the back sheet, whereby the absorbent article has a 3 variable urine only leakage performance index (PI_{3UL}) of less than about 3.0, the PI_{3UL} being determined in accordance with the following equation (1):

$$PI_{3UL} = 0.046\ (Tc) - 2.94\ (MS100) - 0.772\ (AUL) \qquad (1)$$

where Tc is the total capacity in grams, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load, expressed in grams of 0.9 wt% saline solution absorbed per gram of pad material.

2. The absorbent article of claim 1, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is less than about 2.9.

3. The absorbent article of claim 1, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is less than about 2.7.

4. The absorbent article of claim 1, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is within the range of from about 0.5 to about 2.9.

5. The absorbent article of claim 1, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is within the range of from about 0.75 to about 2.7.

6. The absorbent article of claim 1, wherein the absorbent article is a Stage 4 diaper.

7. An absorbent article comprising a top sheet, a back sheet, and an absorbent core disposed at least partially between the top sheet and the back sheet, whereby the absorbent article has a five variable urine only leakage Performance Index (PI_{5UL}) of less than about negative 6.4, whereby PI_{5UL} is determined in accordance with the following equation (2):

$$PI_{5UL} = 0.006\ (Tc)\ -7.094\ (Se) + 1.108\ (MS100) - 0.18\ (AUL) + 0.023\ (St) \quad (2)$$

where Se is surrounds efficiency, St is the third void strikethrough, Tc is the total capacity, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load of the absorbent article.

8. The absorbent article of claim 7, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is less than about negative 6.5.

9. The absorbent article of claim 7, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is less than about negative 6.75.

10. The absorbent article of claim 7, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is within the range of from about negative 9.3 to about negative 6.4.

11. The absorbent article of claim 7, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is within the range of from about negative 8.75 to about negative 6.75.

12. The absorbent article of claim 7, wherein the absorbent article is a Stage 4 diaper.

13. An absorbent article comprising a top sheet, a back sheet, and an absorbent core disposed at least partially between the top sheet and the back sheet, whereby the absorbent article has a 3 variable overall leakage performance index (PI_{3OL}) of less than about negative 2.65, whereby the PI_{3OL} is determined in accordance with the following equation (3):

$$PI_{3OL} = 0.062\ (Tc) - 17.54\ (MS100) - 1.107\ (AUL) \qquad (3)$$

where Tc is the total capacity, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load of the absorbent article.

14. The absorbent article of claim 13, wherein the 3 variable overall leakage performance index (PI_{3OL}) is less than about negative 2.75.

15. The absorbent article of claim 13, wherein the 3 variable overall leakage performance index (PI_{3OL}) is less than about negative 2.9.

16. The absorbent article of claim 13, wherein the 3 variable overall leakage performance index (PI_{3OL}) is within the range of from about negative 7.0 to about negative 2.65.

17. The absorbent article of claim 13, wherein the 3 variable overall leakage performance index (PI_{3OL}) is within the range of from about negative 6.3 to about negative 2.9.

18. The absorbent article of claim 13, wherein the absorbent article is a Stage 4 diaper.

19. An absorbent article comprising a top sheet, a back sheet, and an absorbent core disposed at least partially between the top sheet and the back sheet, whereby the absorbent article has a five variable overall

leakage Performance Index (PI_{5OL}) of less than about negative 9.3, whereby PI_{5OL} is determined in accordance with the following equation (4):

$$PI_{5OL} = 0.018\ (Tc) - 3.75\ (Se) - 11.35\ (MS100) - 0.465\ (AUL) + 0.033\ (St) \qquad (4)$$

where Se is surrounds efficiency, St is the third void strikethrough, Tc is the total capacity, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load of the absorbent article.

20. The absorbent article of claim 19, wherein the five variable overall leakage Performance Index (PI_{5OL}) is less than about negative 9.45.

21. The absorbent article of claim 19, wherein the five variable overall leakage Performance Index (PI_{5OL}) is less than about negative 9.75.

22. The absorbent article of claim 19, wherein the five variable overall leakage Performance Index (PI_{5OL}) is within the range of from about negative 13.0 to about negative 9.3.

23. The absorbent article of claim 19, wherein the five variable overall leakage Performance Index (PI_{5OL}) is within the range of from about negative 12.35 to about negative 9.75.

24. The absorbent article of claim 19, wherein the absorbent article is a Stage 4 diaper.

25. A method of designing an absorbent article to have reduced urine only leakage comprising modifying one or more absorbent article variables by carrying out one or more procedures selected from the group consisting of: (i) adjusting the front pad absorbency under load (AUL) to

a value of about 23 grams of fluid/gram of material or more; (ii) adjusting the percent utilization of the absorbent core (MS100) to a value of about 43% or more; (iii) adjusting the surrounds efficiency (Se) to a value of about 90% or more; (iv) adjusting the third void strikethrough (St) to a value of less than about 30 seconds; and (v) maintaining the total capacity of the absorbent article (Tc) to a value of less than about 495 grams and greater than about 465.

26. The method of claim 25, wherein the front pad absorbency under load (AUL) is adjusted to a value greater than 23.5.

27. The method of claim 26, wherein the front pad absorbency under load (AUL) is adjusted to a value greater than 24.

28. The method of claim 25, wherein the percent utilization (MS100) of the absorbent core is adjusted to greater than about 43.5%.

29. The method of claim 28, wherein the percent utilization (MS100) of the absorbent core is adjusted to greater than about 44.5%.

30. The method of claim 25, wherein the total capacity Tc is maintained at a value within the range of from about 465 grams to about 490 grams.

31. The method of claim 25, wherein the total capacity Tc is maintained at a value within the range of from about 465 to about 485.

32. The method of claim 25, wherein the third void strikethrough (St) of the absorbent article is adjusted to be less than about 28 seconds.

33. The method of claim 32, wherein the third void strikethrough (St) of the absorbent article is adjusted to be less than about 27 seconds.

34. The method of claim 25, wherein the surrounds efficiency (Se) is adjusted to be greater than about 93%.

35. The method of claim 34, wherein the surrounds efficiency (Se) is adjusted to be greater than about 94%.

36. The method of claim 25, wherein at least two of the procedures are carried out.

37. The method of claim 25, wherein all of the procedures are carried out.

38. A method of designing an absorbent article to have reduced overall leakage comprising modifying one or more absorbent article variables by carrying out one or more procedures selected from the group consisting of: (i) adjusting the front pad absorbency under load (AUL) to a value of about 23 grams of fluid/gram of material or more; (ii) adjusting the percent utilization of the absorbent core (MS100) to a value of about 43% or more; (iii) adjusting the surrounds efficiency (Se) to a value of about 89% or more; (iv) adjusting the third void strikethrough (St) to a value of less than about 38 seconds; and (v) maintaining the total capacity of the absorbent article (Tc) to a value of less than about 495 grams and more than about 465 grams.

39. The method of claim 38, wherein the front pad absorbency under load (AUL) is adjusted to a value greater than 23.5.

40. The method of claim 39, wherein the front pad absorbency under load (AUL) is adjusted to a value greater than 24.

41. The method of claim 38, wherein the percent utilization (MS100) of the absorbent core is adjusted to greater than about 43.5%.

42. The method of claim 41, wherein the percent utilization (MS100) of the absorbent core is adjusted to greater than about 44.5%.

43. The method of claim 38, wherein the total capacity Tc is maintained at a value within the range of from about 465 grams to about 490 grams.

44. The method of claim 38, wherein the total capacity Tc is maintained at a value within the range of from about 465 to about 485.

45. The method of claim 38, wherein the third void strikethrough (St) of the absorbent article is adjusted to be less than about 35 seconds.

46. The method of claim 45, wherein the third void strikethrough (St) of the absorbent article is adjusted to be less than about 28 seconds.

47. The method of claim 38, wherein the surrounds efficiency (Se) is adjusted to be greater than about 93%.

48. The method of claim 47, wherein the surrounds efficiency (Se) is adjusted to be greater than about 94%.

49. The method of claim 38, wherein at least two of the procedures are carried out.

50. The method of claim 38, wherein all of the procedures are carried out.

51. A method of making the absorbent article of claim 1 comprising

providing a top sheet, a back sheet, and an absorbent core to a garment forming station; and

disposing the absorbent core at least partially between the top sheet and the back sheet at the garment forming station to form the absorbent article.

52. The method of claim 51, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is less than about 2.9.

53. The method of claim 51, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is less than about 2.7.

54. The absorbent article of claim 51, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is within the range of from about 0.5 to about 2.9.

55. The absorbent article of claim 51, wherein the 3 variable urine only leakage performance index (PI_{3UL}) is within the range of from about 0.75 to about 2.7.

56. The absorbent article of claim 51, wherein the absorbent article is a Stage 4 diaper.

57. A method of making the absorbent article of claim 7 comprising

providing a top sheet, a back sheet, and an absorbent core to a garment forming station; and

disposing the absorbent core at least partially between the top sheet and the back sheet at the garment forming station to form the absorbent article.

58. The method of claim 57, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is less than about negative 6.5.

59. The method of claim 57, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is less than about negative 6.75.

60. The method of claim 57, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is within the range of from about negative 9.3 to about negative 6.4.

61. The method of claim 57, wherein the five variable urine only leakage Performance Index (PI_{5UL}) is within the range of from about negative 8.75 to about negative 6.75.

62. The method of claim 7, wherein the absorbent article is a Stage 4 diaper.

63. A method of determining the three variable urine only leakage performance index of an absorbent article comprising

measuring at least the total capacity, the front pad AUL and the percent utilization of the absorbent article;

optionally measuring the surrounds efficiency and the third void strikethrough of the absorbent article; and

calculating the three variable urine only leakage performance index of the article by carrying out the following calculation (1) :

$$PI_{3UL} = 0.046\ (Tc) - 2.94\ (MS100) - 0.772\ (AUL) \qquad (1)$$

where Tc is the total capacity in grams, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load, expressed in grams of 0.9 wt% saline solution absorbed per gram of pad material.

64. A method of determining the five variable urine only leakage Performance Index comprising

measuring at least the total capacity, the front pad AUL, the percent utilization, the surrounds efficiency, and the third void strikethrough of the absorbent article; and

calculating the five variable urine only leakage performance index of the article by carrying out the following calculation (2) :

$$PI_{5UL} = 0.006\ (Tc)\ -7.094\ (Se) + 1.108\ (MS100) - 0.18\ (AUL) + 0.023\ (St) \quad (2)$$

where Se is surrounds efficiency, St is the third void strikethrough, Tc is the total capacity, MS100 is the percent utilization of the core upon insult with 100 ml of 0.9 wt% saline solution, and AUL is the front pad absorbency under load of the absorbent article

65. A method of designing an absorbent article having reduced leakage comprising:

measuring a plurality of variables on a plurality of different absorbent articles;

determining through use testing the percentage of the plurality of absorbent articles that have urine only leakage, and that have overall leakage;

determining through regression analysis which of the plurality of variables for the plurality of absorbent articles provides a substantially direct correlation with the urine only leakage percentage and/or overall leakage percentage to produce at least two leakage variables that substantially directly correlate with leakage percentage;

determining through regression analysis a direct correlation between a combination of the at least two leakage variables and urine only leakage and/or overall leakage to provide a multi-variable performance index; and

adjusting the multi-variable performance index to reduce the leakage percentage of the absorbent article.